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EXAMINER

OLSEN, KAJ K

ART UNIT

PAPER NUMBER

1753

DATE MAILED: 01/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/042,867

Applicant(s)

POLIKARPUS ET AL.

Examiner

Kaj Olsen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 18-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1/09.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-17, drawn to a gas sensor, classified in class 204, subclass 424.
  - II. Claims 18-33, drawn to a method of making a gas sensor, classified in class 156, subclass 89.12.
  - III. Claims 34-39, drawn to a ceramic part, classified in class 501, subclass 55.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product could be made with electrolyte and insulating layers that were separately fired and joined.
3. Inventions (I or II) and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the frit need not be a glass comprising 35 to 70 mole percent SiO<sub>2</sub>. The subcombination has separate utility such as a capacitor dielectric.

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4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with Pam Curbelo on 12-9-2003 a provisional election was made with traverse to prosecute the invention of group I, claims 1-17. Affirmation of this election must be made by applicant in replying to this Office action. Claims 18-39 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

#### ***Information Disclosure Statement***

7. The information disclosure statement includes a document by individuals Armstrong and Meinhardt. However, it is unclear what this document is and whether this document would qualify as prior art under any of the subheadings of 35 U.S.C. 102. Was this document published and if so, where?

#### ***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
10. Claim 1 specifies that the insulating layer be in "intimate contact" with the second electrode. However, according to the figure, it doesn't appear that the electrode is even in contact with the insulating layer. In particular, it would appear that the electrode resides in a channel 36 on the insulating layer 12, but only the lead for the electrode appears to actually touch the insulating layer. Hence the metes and bounds of the applicant's claimed "intimate contact" is unclear.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

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invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiedenmann et al (USP 6,350,357 B1) in view of Makino et al (USP 5,676,811).

14. Wiedenmann discloses an electrolyte layer 21 having disposed on opposite sides a first and second electrode (31 and 35 respectively) (fig. 1 and 2). Wiedenmann also discloses an insulating layer 50 that comprises a combination of alumina and frit material (paragraph bridging col. 1 and 2; col. 3, lines 10-23; and Examples 1 and 2). Although Wiedenmann does not explicitly disclose that this insulating layer be in intimate contact with the second electrode (the layer of Wiedenmann that most closely approximates the "intimate" insulating layer of the instant invention is layer 25 which is disclosed as being an electrolyte layer). However, there are a number of reasons why one possessing ordinary skill in the art would utilize an insulator for the layer 25 of Wiedenmann instead of electrolyte, which are demonstrated by the teaching of Makino. In particular, Makino teaches a sensor where the layer 5 that defines the reference oxygen space (equivalent to the layer 25 of Wiedenmann) is an insulating layer (paragraph bridging col. 4 and 5 of Makino). Because insulating layers are both cheaper and less susceptible to leaks than electrolyte layers (see Makino, col. 1, line 66 through col. 2, line 8 and col. 2, lines 39-43), it would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Makino and construct the layer 25 of Wiedenmann out of insulating material as well in order to make the sensor less expensive and less susceptible to leakage. In addition, one possessing ordinary skill in the art would recognize that insulating materials provide greater electrical resistance than electrolyte layers. Thereby constructing layer

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25 out of insulating material would further prevent heater current from interfering with the electrochemical sensor.

15. With respect to the particular levels of frit comprising up to 10% or 2-8% or 4-6%, although Wiedenmann does not disclose any particular embodiments having those specified amount, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize those particular frit concentrations, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

16. With respect to the claimed resistivities, because the layer of Wiedenmann already sets forth the claimed insulating layer compositions, the layers of Wiedenmann inherently satisfy the claimed resistivities.

17. With respect to the particular amount of silica present, see Wiedenmann, col. 3, lines 65 and 66.

#### *Allowable Subject Matter*

18. Claims 13-17 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

19. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not disclose nor render obvious a sensor comprising all the limitations of claim 12 and further comprising the set forth frit composition of claim 13.

*Conclusion*

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Both Friese references disclose relevant insulator compositions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (703) 305-0506. The examiner can normally be reached on Monday through Thursday from 7:00 AM-4:30 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Mr. Nam Nguyen, can be reached at (703) 308-3322.

When filing a fax in Group 1700, please indicate in the header "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communications with the PTO that are not for entry into the file of this application. This will expedite processing of your papers. The fax number for regular communications is (703) 305-3599 and the fax number for after-final communications is (703) 305-5408.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, whose telephone number is (703) 308-0661.



Kaj K. Olsen  
Patent Examiner  
AU 1753  
December 15, 2003